Patent claims

1. A cooling device for an electrical power unit (1) of electrically operated vehicles, comprising at least one power section (3) and at least one control section (2) and also a cooling circuit containing a coolant and a heat exchanger for cooling the power unit (1), characterized in that a first cooling circuit (11) containing a heat exchanger (9) with a low coolant temperature is provided mainly for cooling elements of the control sections (2), and a further cooling circuit (12) with a higher coolant temperature is provided mainly for cooling elements of the power sections (3).

2. The cooling device as claimed in claim 1, characterized in that the power section (3) and the control section (2) are arranged on a common printed circuit board (4) in a common housing (5), and at least one partition wall (6, 7) is provided between the power section (3) and the control section (2).

3. The cooling device as claimed in claim 2, characterized in that the partition walls (6, 7) are composed of a thermally insulating material.

4. The cooling device as claimed in claim 2 or 3, characterized in that the partition walls (6, 7) are provided with cooling ducts (8, 14) for conducting coolant.

5. The cooling device as claimed in one of claims 2 to 4, characterized in that the housing (5) is provided with cooling ducts (8, 14) for conducting coolant.

6. The cooling device as claimed in claim 1, characterized in that the power section (3) and the control section (2) are arranged such that they are physically separate from one another.

7. The cooling device as claimed in one of the preceding claims, characterized in that the temperature of the coolant fed to the power section (3) is approximately 90 degrees Celsius and the temperature of the coolant fed to the control section (2) is approximately 70 degrees Celsius.

8. The cooling device as claimed in one of the preceding claims, characterized in that elements of the control section are arranged in the region of the power section and/or elements of the power section are arranged in the region of the control section.